EIZO

ColorEdge

Color Calibration LCD Monitors

Color as it's meant to be

Premium Edition

ColorEdge Premium Edition monitors — the CG221, CG241W, and CG211 — implement EIZO's latest technology for high-end color performance. At the core of the Premium Edition is a newly developed integrated circuit which features a 12-bit look-up table and 16-bit internal processing to achieve uniform brightness and color across the screen. In addition, a monitor hood and a screen cleaner kit are bundled with the monitorsh.

The ColorEdge CG210-N and CG19 also offer excellent color accuracy with a 10-bit look-up table and 10-bit or greater processing. Monitor hood and screen cleaner kit are available as accessories.

Professional Color Quality with Precision Calibration

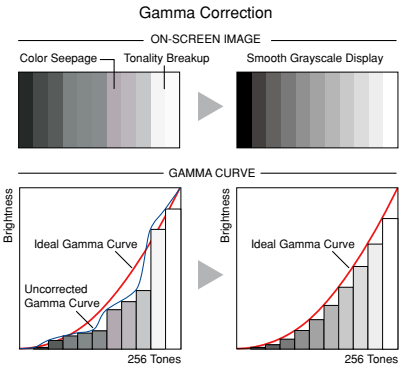
Professionals doing high quality digital imaging in fields such as graphic arts, photography and printing require a monitor with superior color accuracy and color management capabilities. The EIZO ColorEdge series offers four monitors that perform to the highest standards. With different sizes, resolutions and functions to meet varied needs, they all provide total assurance of color accuracy because each unit is individually calibrated at the factory. They also come supplied with EIZO's proprietary ColorNavigator™ software, which utilizes a 10- or 12-bit Look-Up Table for fast calibration of brightness, color temperature and gamma. As a result, you enjoy the benefits of soft proofing and on-screen color checking for a more efficient workflow, as well as the convenience of a slim-profile monitor.

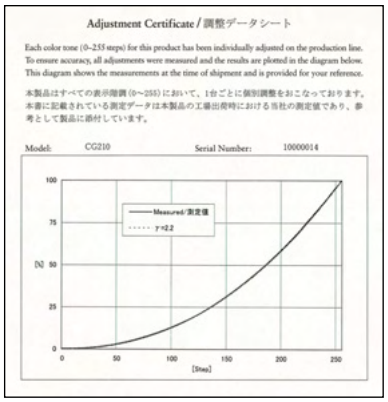
Factory Adjustment Of Gamma

The gamma level for each ColorEdge monitor is adjusted at the factory. This is accomplished by measuring the R, G, and B gamma values from 0 – 255, then using the monitor's 12-bit (CG221, CG241W, and CG211) or 10-bit (CG210-N and CG19) look-up table (LUT) to select the 256 most appropriate tones to achieve the desired value.

This is important because accurate, non-fluctuating gamma values are necessary for the proper display of color. If colors are not based on specific values and cannot be adjusted, images will be displayed differently by different monitors. ColorEdge monitors provide both precision and consistency, so graphics professionals can be sure that the final product will look exactly the way they want it to. In fact, each monitor comes with an adjustment certificate that certifies the measurement results of the gamma value.

Each monitor adjusted individually at the factory. (For illustrative purposes only. Actual adjustment is performed in a darkroom.)

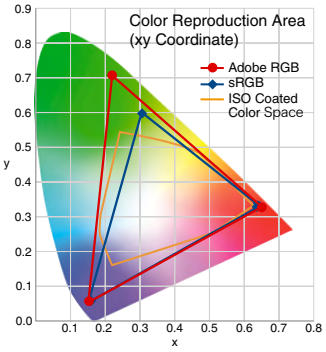




Wide Color Space

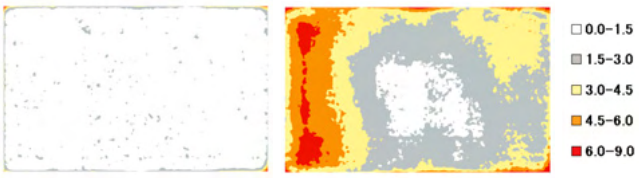
The CG221 and CG241W can reproduce the Adobe RGB color space,* meaning they not only cover the sRGB color space supported by many computer monitors, operating systems and digital cameras, but the ISO-coated and US web-coated CMYK color spaces used in printing as well. This makes it possible to achieve a standard color space for all work from photography to printing.

** Coverage information is in the specifications on the last page.*



Brightness and Color Uniformity with 12-Bit LUT

Achieving uniform levels of brightness and color across the screen has been all but impossible with LCD monitors. To correct this problem, EIZO has developed an ASIC (Application Specific Integrated Circuit) and incorporated it into the ColorEdge CG221, CG241W, and CG211. This ASIC has a 12-bit look-up table (LUT) with an extensive palette of 4,081 grayscale tones for each R, G, and B, and internal calculation accuracy of 16-bits (64 times more accurate than 10-bit internal calculation).



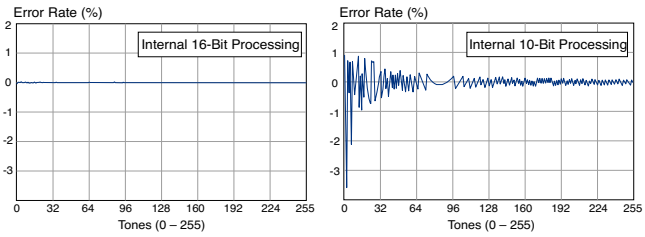
With Digital Uniformity Compensation Without Digital Uniformity Compensation

*Color-separated image with Delta-E*ab distribution across the screen (gray level 128 measured)*

16-bit Internal Processing

The 16-bit internal calculation of the CG221, CG241W, and CG211 produces grayscale rendering that is on a par with high-end CRT monitors. The result is not only a much greater degree of detail in dark areas, but overall uniformity of brightness and color throughout the entire screen. (The CG210-N and CG19 have 14-bit and 10-bit internal processing respectively.)

16-bit v. 10-bit processing



With 10-bit processing, the error rate is high in low tonal areas during calculation. With 16-bit processing, accuracy is significantly improved resulting in fewer conversion errors.

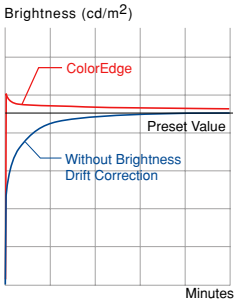
Color Vision Deficiency Simulation

To accommodate people with red-green color vision deficiency (protanopia and deuteranopia), care must be taken in choosing color schemes for maps, signage, indicator lights, etc. With internal hardware conversion and the bundled UniColor Pro software, the ColorEdge CG241W instantly simulates how still and moving images appear to people with color vision deficiency.

Original mode *Deuteranope mode*

Brightness Stabilization

At startup or upon wakeup, an EIZO-patented drift correction function quickly stabilizes the brightness level. In addition, a sensor measures the backlight brightness and compensates for brightness fluctuations caused by the ambient temperature and the passage of time.



The Software: Extensive Calibration Capabilities

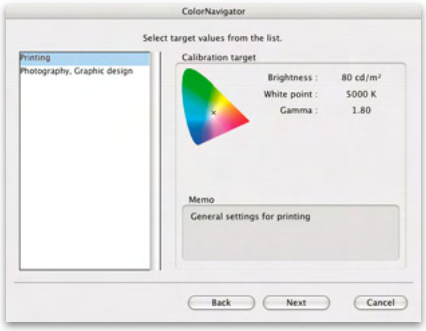
Simple and Precise Calibration

The EIZO-developed ColorNavigator software makes calibration both simple and accurate. Instead of having to judge colors and do time-consuming inputting, or having a specialist do it for you, all you need to do is input target values for brightness, white point and gamma. ColorNavigator works with a wide range of measurement devices to directly utilize the 12- or 10-bit LUT of ColorEdge monitors for accurate and reliable calibration in minutes.

Preset or User-Assigned Values

Preset Values

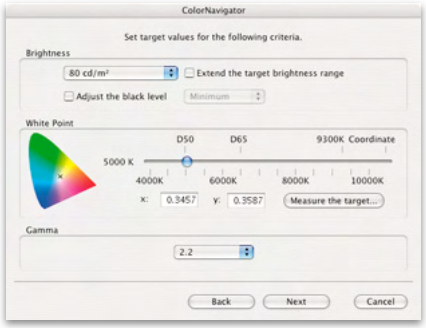
Printing and Photography/Graphic Design settings are available with default values. Just select either one and ColorNavigator will begin calibrating. Ideal for users with limited color management knowledge, this takes the guesswork out of assigning values.



User-Assigned Values

Experienced users can assign the desired values for brightness, white point, and gamma and then calibrate.

*This function will be supported by the CG241W from November 2007.**



Calibration Parameters

Brightness		30 cd/m² – 200 cd/m² in 5 cd/m² increments Possible to set to the monitor's maximum and minimum values.†
	Black Level	0.5 cd/m² – 3.5 cd/m²‡ in 0.1 cd/m² increments Possible to set to the monitor's minimum value.
White Point	Color Temperature	4,000 K – 10,000 K in 100 K increments
	Color Coordinates	x Value, y Value
Gamma		1.0 – 2.6 in 0.1 increments and L* ¶

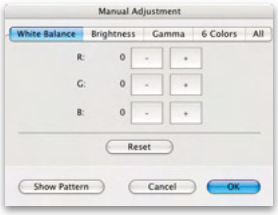
† For the CG241W the brightness setting is 50 cd/m² – 300 cd/m². With the CG221 and CG241W it may not be possible to set the brightness to the maximum values depending on LCD panel performance. With the CG241W setting to the minimum value is not available. ‡ With the CG19, choosing "6-Color Adjustment" after calibrating will disable the black level function and gamma will only be adjustable from 1.8 to 2.6 in increments of 0.2. ¶ With the CG241W setting to L is not available.*

Paper White Measurement

ColorNavigator offers a paper white measurement function for color matching between the image on the monitor and the image on the printouts. By measuring the white of the paper to be used for printing, ColorNavigator will automatically set the target values for brightness and white point accordingly.

This function is compatible with the X-Rite DTP94, DTP94B, Eye-One Display 2, Eye-One Display LT and Eye-One Pro only.

Post-Calibration Color Adjustment

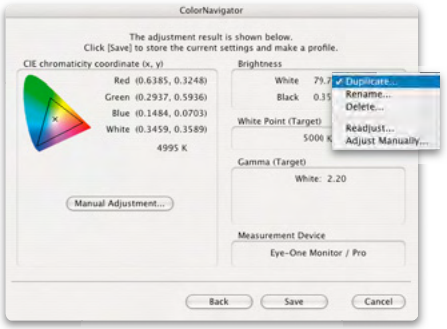


Post-Calibration Manual Adjustment Screen

Sometimes due to variations in output from different printers or the special requirements of a project, it is necessary to fine-tune an otherwise perfectly calibrated monitor to match target colors. ColorNavigator lets you easily adjust hue and saturation for all six colors (red, green, blue, cyan, magenta and yellow), as well as white balance, brightness, black level and gamma, to achieve the closest possible visual match. For confirmation of calibration results or to achieve more accurate manual adjustments, a test pattern screen can now be displayed. The test pattern screen shows a full grayscale ramp as well as just the low tones (blacks), high tones (whites), and gamma values. The results of all manual adjustments are immediately reflected on the test pattern screen.

*This function will be supported by the CG241W from November 2007.**

Convenient Calibration Profile Management



ColorNavigator also makes it easy to keep track of calibration profiles. When you want to adjust a profile in order to match your monitor to other equipment such as printers or light boxes, you can use the Duplicate function to make a copy of it, then adjust the duplicate profile and give it a new name. Naturally, you can make as many duplicates, and thus adjusted profiles, as desired.

*This function will be supported by the CG241W from November 2007.**

Recalibration Reminder

After initial calibration, a monitor needs to be recalibrated at regular intervals to maintain color accuracy. ColorNavigator includes a recalibration reminder that will appear after a certain number of user-determined hours. When the monitor is first calibrated, the date and time are saved. After the time you set has elapsed, an LED on the front panel lights up, and a reminder message appears the next time ColorNavigator starts up. If you prefer to calibrate according to the amount of change that has occurred, you can measure the color difference (Delta-E) between the original target points and the actual current points at any time.

*This function will be supported by the CG241W from November 2007.**

** An upgrade for ColorNavigator which will allow the CG241W to support all functions introduced here is scheduled for November 2007.*

ColorNavigator and ColorNavigator CE System Requirements

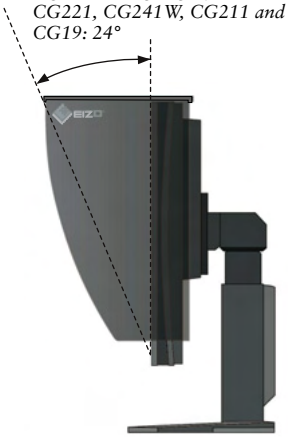
Compatible Operating Systems	Macintosh	Windows
	Mac OS X 10.2 or later OS 9.2.2	Windows Vista/XP Professional x64 Edition/XP/2000
Colors	32,000 minimum	
Resolution	1024 × 768 minimum recommended	
Additional Requirements	• PowerPC compatible CPU (except iBook) • Intel compatible CPU	
	Two or more available USB ports	

CH2

Monitor Hoods

EIZO's monitor hoods not only prevent ambient light from reflecting off the screen, but include added conveniences like a sliding top cover and an interior made of anti-glare material. A monitor hood is bundled with the CG221, CG241W, and CG211, and the CH2 is sold separately for the CG210-N and CG19.

Light shielding angle from above –
CG221, CG241W, CG211 and CG210-N: 23°
CG19: 24°



The measuring device can be attached to the monitor and removed with the hood in place via a sliding top cover.

The inside of the hood is made with anti-glare material.

LS-HM1-D

Dual Height Adjustable Stand

The LS-HM1-D holds two monitors of the same or different sizes (excluding the CG221 and CG241W), provides six-stage height adjustment from 0 – 75 mm, supports portrait mode, and offers cable housing in the back. (Sold separately.)

A monitor hood cannot be affixed when monitors are mounted on this stand.

LA-131-D

Flexible Arm

Adjust tilt, swivel, and height for best visibility when you're seated or standing, and when you won't be using the monitor for a while move it completely out of the way. Offers three axes of movement and is available in gray or black. (Sold separately; supports only the CG241W, CG211, CG210-N and CG19.)

LA-030-W / LA-011-W

Wall Mount Arms

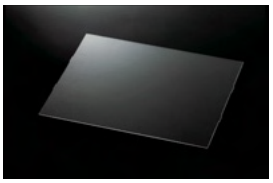
LA-030-W

LA-011-W

Mount your monitor on a wall and adjust the screen's position as necessary. The LA-030-W includes three axes of movement, allowing it to be extended more than 500 mm away from or placed against the wall when not in use. The LA-030-W is available in gray or black, and the LA-011-W in black. (Sold separately; supports only the CG241W, CG211, CG210-N and CG19.)

FP-2400W / FP-901 / FP-702

Panel Protectors



To prevent dust and scratches, EIZO offers the FP2400W (for the CG241W), FP-901 (for the CG211 and CG210-N) and the FP-702 (for the CG19) protection sheets that fit right over the screen surface and leave minimal trace of implementation. (Sold separately.)

ScreenCleaner

Screen Cleaner Kit

Keep your screen free from dust and fingerprints with this screen cleaner kit. Includes pump spray and cloth. (Bundled with CG221, CG241W, and CG211. Sold separately for the CG210-N and CG19.)

ColorNavigator Compatible Measurement Devices

ColorNavigator supports the following measurement devices[1].

X-Rite

MonacoOPTIX^{XR}/MonacoOPTIX^{XR} Pro[2]
DTP94/DTP94B[2]
Eye-One Series[3]

ColorVision

Spyder 2 Series[2]

[1] *For optimum calibration results with the ColorEdge CG221, an X-Rite Eye-One spectrophotometer is recommended.*

[2] *These measurement devices are not compatible with the Mac OS 9.2.2. Spyder 2 is not supported by the CG241W.*

[3] *Eye-One Display LT is supported with Mac OS 10.3.9 or later only.*

ColorEdge CG221

ColorEdge CG241W

ColorEdge CG211

ColorEdge CG210-N

ColorEdge CG19

		ColorEdge CG221	ColorEdge CG241W	ColorEdge CG211	ColorEdge CG210-N	ColorEdge CG19
Panel Size and Type		56.4 cm (22.2") TFT color LCD panel	61 cm (24.1") TFT color LCD panel	54 cm (21.3") TFT color LCD panel	54 cm (21.3") TFT color LCD panel	48 cm (19") TFT color LCD panel
Viewing Angles (H, V)		170°, 170° (at contrast ratio of 10:1)	178°, 178° (at contrast ratio of 10:1)	170°, 170° (at contrast ratio of 10:1)	170°, 170° (at contrast ratio of 10:1)	170°, 170° (at contrast ratio of 10:1)
Brightness		200 cd/m² (maximum) 100 cd/m² or less (recommended[1])	300 cd/m² (maximum) 120 cd/m² or less (recommended[1])	225 cd/m² (maximum) 100 cd/m² or less (recommended[1])	250 cd/m²	280 cd/m²
Contrast		400:1	850:1	500:1	550:1	450:1
On/Off Response Time		30 ms (typical)	16 ms (typical)	30 ms (typical)	30 ms (typical)	20 ms (typical)
Midtone Response Time[2]		–	6 ms (typical)	–	–	–
Native Resolution		1920 × 1200	1920 × 1200	1600 × 1200	1600 × 1200	1280 × 1024
Active Display Size (H × V)		478 × 299 mm	518.4 × 324 mm	432 × 324 mm	432 × 324 mm	376 × 301 mm
Viewable Image Size		Diagonal: 563 mm	Diagonal: 611 mm	Diagonal: 540 mm	Diagonal: 540 mm	Diagonal: 481 mm
Pixel Pitch		0.249 × 0.249 mm	0.270 × 0.270 mm	0.270 × 0.270 mm	0.270 × 0.270 mm	0.294 × 0.294 mm
Gamut Coverage	**sRGB**	98%	98%	99%	99%	92%
	Adobe RGB	98%	96%	78%	78%	75%
Display Colors		16.77 million from a palette of 68 billion	16.77 million from a palette of 68 billion	16.77 million from a palette of 68 billion	16.77 million from a palette of 1.06 billion	16.77 million from a palette of 1.06 billion
Look-Up Table		12-bits per color	12-bits per color	12-bits per color	10-bits per color	10-bits per color
Internal Processing		16-bits per color	16-bits per color	16-bits per color	14-bits per color	10-bits per color
Available Cabinet Colors		Black	Black	Gray, Black	Gray, Black	Gray, Black
Dot Clock		Analog: 202.5 MHz Digital: 162 MHz	Analog: 202.5 MHz Digital: 164.5 MHz	Analog: 202.5 MHz Digital: 162 MHz	Analog: 202.5 MHz Digital: 162 MHz	Analog: 135 MHz Digital: 108 MHz
Scanning Frequency (H, V)	**Analog**	31 – 94 kHz, 49 – 86 Hz	24 – 94 kHz, 47.5 – 86 Hz	24 – 100 kHz, 49 – 86 Hz	24 – 100 kHz, 49 – 86 Hz	30 – 82 kHz, 49 – 86 Hz
	Digital	31 – 76 kHz, 59 – 61 Hz (VGA Text: 69 – 71 Hz)	26 – 78 kHz, 47.5 – 63 Hz (VGA Text: 69 – 71 Hz)	31 – 100 kHz, 59 – 61 Hz (VGA Text: 69 – 71 Hz)	31 – 100 kHz, 59 – 61 Hz (VGA Text: 69 – 71 Hz)	30 – 65 kHz, 59 – 61 Hz (VGA Text: 69 – 71 Hz)
Input Terminals		DVI-I 29 pin × 2 (switchable)	DVI-I 29 pin × 2 (switchable), HDCP supported[3]	DVI-I 29 pin × 2 (switchable)	DVI-I 29 pin × 2 (switchable)	DVI-I 29 pin × 2 (switchable)
USB Port		1 up, 2 down	1 up, 2 down	1 up, 2 down	1 up, 2 down	1 up, 2 down
Power Requirements		AC 100 – 120 V, 200 – 240 V: 50 / 60 Hz	AC 100 – 120 V, 200 – 240 V: 50 / 60 Hz	AC 100 – 120 V, 200 – 240 V: 50 / 60 Hz	AC 100 – 120 V, 200 – 240 V: 50 / 60 Hz	AC 100 – 120 V, 200 – 240 V: 50 / 60 Hz
Power Consumption		100 W (maximum)	110 W (maximum)	75 W (maximum)	75 W (maximum)	60 W (maximum)
Power Save Mode		Less than 2 W	Less than 2 W	Less than 2 W	Less than 2 W	Less than 3 W
Height Adjustment Range		100 mm	82 mm	82 mm	82 mm	100 mm
Tilt / Swivel / Pivot		30° Up, 3° Down / 35° Right, 35° Left / –	40° Up, 0° Down / 35° Right, 35° Left / 90°	40° Up, 0° Down / 35° Right, 35° Left / 90°	40° Up, 0° Down / 35° Right, 35° Left / 90°	40° Up, 1° Down / 35° Right, 35° Left / 90°
Dimensions (W × H × D)		With Stand: 565 × 452.5 – 552.5 × 272 mm Without Stand: 565 × 394.5 × 101 mm	With Stand: 566 × 456 – 538 × 230 mm Without Stand: 566 × 367 × 85 mm	With Stand: 472 × 459 – 541 × 208.5 mm Without Stand: 472 × 373 × 69 mm	With Stand: 472 × 459 – 541 × 208.5 mm Without Stand: 472 × 373 × 69 mm	With Stand: 414 × 409.5 – 509.5 × 202.7 mm Without Stand: 414 × 340 × 64 mm
Net Weight		With Stand: 14.5 kg, Without Stand: 10.4 kg	With Stand: 11 kg Without Stand: 7.4 kg	With Stand: 10.2 kg, Without Stand: 7.0 kg	With Stand: 10.2 kg, Without Stand: 7.0 kg	With Stand: 8.1 kg, Without Stand: 5.8 kg
Display Mode Options		Fine Contrast (sRGB, Custom, Calibration, Emulation)	Fine Contrast (Custom, sRGB, Calibration, Emulation)	Fine Contrast (sRGB, Custom, Calibration)	Fine Contrast (sRGB, Custom, Calibration)	Fine Contrast (sRGB, Custom, Calibration)
Supplied Accessories		AC power cord, signal cables (DVI-D – DVI-D, DVI-I – D-Sub mini 15 pin), USB cable, setup guide, EIZO LCD Utility Disk (ColorNavigator software, HTML user's manual, ICC Profile), adjustment certificate, ScreenCleaner, monitor hood, quick reference, warranty card	AC power cord, signal cables (DVI-D – DVI-D, DVI-I – D-Sub mini 15 pin), USB cable, setup guide, EIZO LCD Utility Disk (ColorNavigator CE software, UniColor Pro software[4], PDF user's manual, ICC Profile), adjustment certificate, ScreenCleaner, monitor hood, quick reference, 4 screws for mount option, warranty card	AC power cord, signal cables (DVI-D – DVI-D, DVI-I – D-Sub mini 15 pin), USB cable, setup guide, EIZO LCD Utility Disk (ColorNavigator software, HTML user's manual, ICC Profile), adjustment certificate, ScreenCleaner, monitor hood, quick reference, warranty card	AC power cord, signal cables (DVI-D – DVI-D, DVI-I – D-Sub mini 15 pin), USB cable, setup guide, EIZO LCD Utility Disk (ColorNavigator software, HTML user's manual, ICC Profile), adjustment certificate, quick reference, warranty card	AC power cord, signal cables (DVI-D – DVI-D, DVI-I – D-Sub mini 15 pin), USB cable, setup guide, EIZO LCD Utility Disk (ColorNavigator software, HTML user's manual, ICC Profile), adjustment certificate, quick reference, warranty card
Warranty		Five Years[1]	Five Years[1]	Five Years[1]	Five Years[1]	Five Years[1]

[1] The usage time is limited to 30,000 hours and the warranty period of the LCD panel is limited to three years from the date of purchase for all monitors in this brochure. For the CG210-N and CG19, the warranty period of the backlight is limited to three years from the date of purchase, but brightness deterioration is not covered. The warranty period of the backlight is warranted only if the monitors are used within the recommended brightness of up to and including 100 cd/m² for the CG221/CG211 and 120 cd/m² for the CG241W with the color temperature between 5,000 K-6,500 K and limited to three years from the date of purchase subject to the usage time being less than or equal to 10,000 hours.

[2] Average response time measured between each grayscale level of 31, 63, 95, 127, 159, 191, and 223.

[3] Display with audio/video devices is not supported.

[4] UniColor Pro Software is compatible with the Microsoft Windows Vista/XP/2000 operating systems and Mac OS X 10.3.9 or later only.

With current LCD technology, a panel may contain a limited number of missing or flickering pixels.

5 Year Warranty

EIZO and its authorized distributors offer a five-year limited warranty for all ColorEdge monitors.

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